Frankly Speaking

Public Opinion

FREQUENTLY public opinion is several strides in advance of official action on issues of general public concern. This may be true in connection with the national poll of public opinion on the traffic safety problem which was conducted recently for The National Committee for Traffic Safety. Highlights of the poll appear in this issue of TRAFFIC ENGINEERING. The majority of people overwhelmingly desire more strict enforcement of traffic laws. They also favor a maximum speed limit of 50 miles per hour or less. They believe that accidents can be reduced.

The opinion poll touches upon an interesting public reaction to Enforcement, Education, and Engineering. The three E's gain about equal favor as means of cutting down accidents, but a significant number of people would be willing to pay additional taxes for better roads and crosswalks while they would not be willing to pay more taxes for enforcement. This indicates a possible awareness that the public gets just what they pay for in modern highways and, further, that they appreciate the need for applying more extensive engineering to reduce traffic hazards.

These and other salient public thoughts, as well as opinions of experts, working through committees, will be subjects for discussion at the President's Highway Safety Conference in Washington, May 8th, 9th and 10th. The Conference sessions will have been completed by the time this publication reaches its readers. However, the recommendations which will be made at the Conference for dealing with the traffic accident and congestion problems, those dealt with in the Public Opinion Poll and otherwise, should be studied and applied locally wherever possible. No radical changes are expected in the recommendations for traffic safety, but certainly some fresh viewpoints and the highlighting of effective measures and deficiencies of the past can be anticipated.

Wilbur S. Smith

Traffic Speed Policies

by CHARLES M. NOBLE
*State Highway Engineer, New Jersey Highway Department**

* This paper was presented at the session on speed at the Annual Conference and Exposition of the Greater New York Safety Council, April 9th, in New York.

THE highway engineer is more directly concerned with the prevailing speed of the motor car 25 or 30 years hence than with current speeds, because highways must be designed today against future obsolescence. Highways cannot be built or replaced as quickly as motor cars and it is essential that the highway engineer make a prudent estimate of future cruising speeds and design today's highways for those speeds. The motor car is a dynamic force and engineering science can match the geometric features of the highway to the dynamic forces applied by the vehicle. The dynamic forces increase as the square of the speed of the vehicle. If future speeds exceed those estimated today, permanent features of the highway, such as the right-of-way, the alignment (curvature, spirals and distance between curves) and sight distances, will become obsolete and the highway will have to be rebuilt. On a national basis, this will result in a staggering economic loss in capital investment and in the disruption in property and business occasioned by the necessity to reconstruct on the new right-of-way.

Speed Affects Design

Speed affects practically every phase of highway traffic design; width of paved traffic lane, shoulder width and treatment, interchange facilities, acceleration and deceleration lanes, width of medial strip in divided highways, as well as curvature, superelevation, spirals and sight distance. The speed of motor trucks affects pavement thickness due to the impact factor. At a given speed a motor car travels so many feet per second; for example, at 60 miles per hour—88 feet per second, at 70 miles per hour—103 feet per second, etc., and these velocities must be geared into human reactions in seconds of time, and the elements of the highway designed accordingly. Thus the speed of the future motor vehicle is of intense and immediate interest to the highway engineer.

With respect to legal speed restrictions, it would appear that those should vary, depending on the character of the highway and the density of traffic. It is believed that lower speed limits should be imposed on highways carrying dense traffic, than on highways with relatively light traffic. Lower speeds should be imposed on terminal facilities in urban areas where a considerable amount of traffic interchange is taking place.

Deaths Per Vehicle Mile

The relation of traffic fatalities to speed has been a controversial issue and it is interesting to note that the rate of traffic fatalities remained at practically pre-war level during the war period when there was a National 35 mile per hour limit, when compared on a vehicle mile basis. This is shown in the following table:

Year	*Fatalities*	*Rate per 100 million vehicle miles*
1937	39,643	14.7
1938	32,582	12.0
1939	32,386	11.4
1940	34,501	11.4
1941	39,969	12.0
1942	28,309	10.6
1943	23,823	11.4
1944	24,300	11.3

Present Trend

Number of deaths same per month as 1944 until VE Day. Each month since V-E day, fatalities have increased. Oct. 1945, was 53% greater than Oct. 1944.

It is possible that the above statistics are not fully representative, but it would appear that total traffic fatalities are more closely tied into total vehicle miles than to speed. In other words, traffic volume appears to influence fatalities more than speed. This may be true up to some optimum speed, but it is somewhat venturesome at this time to assign a value to this optimum speed.

It is believed, however, that it is desirable to establish a minimum speed on the main highways in order to reduce the hazard of rear-end collision accidents due to slow moving vehicles.

Handling Traffic on Existing Highways

by EDGAR F. COPELL, *(Member I.T.E.)**

* Highway Traffic Engineer, Mass. Dept. of Highways. This paper was presented as the keynote of a panel discussion at the Annual Safety Conference and Exposition of the Greater New York Safety Council, April 10, in New York.

TECHNICAL advancement in the post-war United States bids fair to revolutionize our mode of living. Improvements will, we are told, extend to many departments of life. Prefabricated houses will make for low-cost housing. A host of mechanical and electrical gadgets will put an end to household drudgery. Metals and fibres will furnish us with clothing possessed of ever-so-many resisting qualities.

A Streamlined Transportation Future

Nor are these all to which we may look forward. Transportation is scheduled to undergo a great transformation. Passengers are to travel in deluxe railroad cars, the engines of which will be jet propelled. Air travel will be hurtled through space at the unbelievable speeds of 1000 to 1500 m.p.h. Motor vehicle traffic will move on magic motorways where comfort and safety will be practically assured.

These may be correct forecasts. Perchance the dreams of visionaries of other days are actually to take form. I venture to say, however, that the daily lives of most of us will suffer but little if many of these predictions are slow of fulfillment.

Yet there are those post-war improvements which must be immediate. Highway improvements, for example! These will brook no delay. Upon these will turn our lives, our health and our economy. The question naturally arises, then, as to the nature of these improvements. What are the best measures to pursue? Should we construct new roads of the superhighway type or should we attempt to adapt our existing system to meet present needs and those of the immediate future?

Some Place Superhighways First

The answer will depend upon the viewpoint. There are those who maintain that superhighways should be our

first consideration. They point out that construction of this kind will not only serve to accommodate and facilitate the vast increase in vehicular travel that is certain to follow in the wake of the war, but will likewise assist in rehabilitation of veterans through necessary public works. They are of the opinion also that by siphoning off through traffic, urban streets will function smoothly.

In the opposite camp are those who hold that urban street traffic should occupy first place. Not that they are opposed to superhighways. They are not. They feel, however, that super-highways should be a gradual development rather than a project to be completed within a few years following cessation of hostilities.

The reasons advanced in support of the urban programs are strictly logical. It is pointed out that 98.4% of highway travel is less than 100 miles. Added strength is lent to the argument by the Automotive Safety Foundation's statement that "In 1941, 34,000,000 motor vehicles rolled up 348 billion miles of travel in the U.S. Over half of it was on the 10% of the roads made up of city streets (30% on local streets and 20% on main state highway extensions inside the city). Over 36% of the travel was on rural state highways, which contain 15% of total road mileage. Less than 14% was on country and local roads which represent 75% of all road mileage. Thus a very limited mileage of streets and roads carries the great bulk of motor travel."

We find ourselves aligned with the second school of thought. And, I feel, with sound reason. Look about our city streets and those of the larger towns. What is the traffic pattern if not one of congestion, delay and accidents?

Every time I witness the helterskelter travel on city streets I'm reminded of the pictures one sees in the movies of a cattle roundup. The cattle are being pressed from all sides and wedged into the narrow opening of a corral. In the hurly-burly that follows, some are gored slightly, others side-scraped and still others thrown to the ground in their headlong passage.

Some may object to this analogy. But what is more typical of travel on urban streets? By and large municipalities do not have sufficiently wide thoroughfares to handle efficiently the tremendous volumes forced upon them. Vehicles are compressed within narrow street limits in much the same fashion as the cattle and with the same bad results.

Bottlenecks in Cities

Many factors are responsible. We shall try and consider several of them. The first with which we are faced is the state highway traffic routed through cities and towns. Invariably this traffic is bottle-necked in the most critical areas. Obviously this is a mistake. The deplorable part of it is that cities benefit next to nothing, financially, by the mixing of through and local traffic. Were it not constrained to follow a given route, most through traffic would gladly avoid the jams and delays to which it is forced to submit.

Manifestly these two phases of traffic should be segregated. Of course, the only remedy is the superhighway with its ramps for entering and leaving. But, I repeat, if the building of such highways is made the first consideration, a period of several years must elapse before even partial relief for urban traffic will be had. In the meantime chaotic urban highway conditions are bound to result.

Can we then afford to temporize? Can we take the chance that in the interim we can, in some providential manner, manage to keep traffic moving even though our already overburdened streets will be submitted to

additional loads? Congestion, delay, accidents and decentralization are the coins in which we are already paying for refusal to face the urban situation squarely.

Now we are a very practical and a thrifty people. We trumpet these facts to the world. Yet the confusion that abounds on urban streets gives to our vaunted words the lie. Can we not see that our urban highway jumble is costing us needless millions? Certainly the people of the United States must realize that decentralization, the gasoline consumed in delay, the accidents that hourly occur on our streets, comprising the major portion of highway mishaps, and the general inconvenience to persons using the central area are reflected in taxes.

What To Do

What then should be done about the matter? Well, the solution is not new nor is it difficult. It is, however, somewhat drastic. It consists in the elimination, so far as is practicable, of those features of urban travel that tend to disrupt or impede the ordinary flow of traffic. It means, e. g., that we have got to approach the parking situation in the central area from a new angle. We must, too, overcome other irksome features of highway travel and things that have a bearing on operation. Lastly we must come to grips with the proper use of streets by pedestrians.

It is doubtful if even the weather is as much talked of as these things. Most everyone has some form of complaint. Perchance if parking and pedestrians were less the topic of criticism, something really constructive would have long since been accomplished. We have, however, lacked the courage to attack these problems in a fearless fashion.

By this I do not mean that much, very much has not been done to remedy the parking evil and to safeguard highway users. It has! At best, however, it has been but a palliation. Before dwelling on this let us consider the parking situation in some of its phases.

Parking

There are some places where parking in the central area does not exert too harmful an influence on moving traffic. For the most part, such conditions prevail in the smaller towns only. But urban streets are generally of the two or at best three lane variety.

Common sense dictates that only for specific reasons should vehicles be allowed to park on streets of so narrow width. Even to permit parking on a single side of busy one-way streets is, to my mind, an error of judgment. Because spaces here, as elsewhere, are at a premium during working hours, a single infraction by double parking can tie up traffic for blocks.

Confusion is often piled on confusion by angle parking of passenger cars. This is the favorite parking method of many merchants and not a few women. The former contend that more cars can be thus accommodated and that business is assisted. Many women do not have too great facility in backing parallel to the curb and as a result are partial to angle parking. Both are correct. Both, too, are apparently unmindful of the congestion and accidents that are rightly chargeable to parking of this nature.

Transportation trucks of the freight car type are likewise inclined towards angle parking. As I see it, some of this type of parking is excusable. Merchandise has got to be moved if business is to continue. Ordinarily operators of these vehicles are forced to load or unload heavy or bulky material. It is natural then that they adopt the least laborious manner of carrying on their work. Moreover, it does not seem fair to censure these drivers when, because of inability to get to the curb, they resort to double parking.

All sorts of expedients have been tried in an effort to cope with the parking situation. Parking has been prohibited at all times in many places. Time limits for parking have also been established. Attempts have likewise been made to prohibit parking in the direction of the prevailing flow. Parking bans have in addition been placed on limited areas between specified hours. Parking meters have been tried by some as a medium of relief.

Traffic Remedies Have Been Ineffectual

All have, to some degree, been ineffectual. They have failed to accomplish the results intended, which are to make for efficient use of the highway. Restrictive signs are not self-enforcing. Violations must be constantly checked. Because urban streets are so numerous, the phases of restriction so varied and the number of police so limited, proper enforcement is well nigh impossible. What is true of signs holds also for meters since at best these are on the order of a sign and require to be policed. It has been the experience of some, likewise, that meters simply change the locale of the parking problem. Then, too, there are legal aspects concerning the erection of these devices that must be considered in some places.

The Answer—Prohibit Parking

What then should be done respecting parking in the central areas of cities? How are we to cure most of the traffic ills and restore facility of movement? The answer is to prohibit parking at anytime on all of these streets save for the purpose of permitting persons to board or alight from busses or to allow for the pickup and discharge of merchandise. Even the latter should be restricted to certain hours of the morning and afternoon.

To be sure parking is a right acquired by the public as an incident of travel. Yet municipalities act within their province when they prohibit or restrict parking. A Massachusetts Supreme Court decision has this to say respecting this matter: "No right of any citizen is impaired by an ordinance which prohibits the parking of vehicles at a place in a public street or highway where such person has not legal title to the land occupied by the street or highway and has no interest in such greater than an easement of travel which is held in common with all citizens." Obviously, then, there is no legal impediment to complete prohibition.

But Provide Off-Street Facilities

But vehicles thus excluded should be cared for in some manner. Exactly! but in off-street areas. Numerous off-street parking places, privately owned, are now to be found in most every city. Many of these are not, however, strategically located. In the event that general parking prohibitions were adopted, it should be the duty of cities to provide suitable locations.

This should not be difficult. Property is constantly coming into the hands of municipalities that could be readily converted to this purpose. Even though this were not so, many municipalities are authorized by law to acquire land for parking areas and to maintain the same. It is fairly well established also that cities and towns may impose a fee for the privilege of parking.

Numerous cities and towns have already established off-street parking. One of the most outstanding instances is Union Square Park, San Francisco, built at a cost of $1,555,000. This subterranean garage is capable of housing 1,700 cars. A similar underground garage with a capacity of 5,000 cars has been proposed for Boston beneath Boston Common. The City of Lewiston, Maine has just announced completion of a municipal parking area. Some municipal parking

spaces have many disadvantages. Too little attention has been given to proper entrances and exits. Hardened surfaces, with no consideration of drainage, constitute, in fact, about the only improvement. There is little resembling order. Vehicle spaces have not been painted upon the surfaces with the result that cars are parked at all sorts of angles. Lighting, a most essential feature, has been almost completely overlooked. These, coupled with the lack of attendants, do not add to the attractiveness of many parking places, particularly in the eyes of women operators.

Of course parking spaces cannot be made ready over night. For this reason efforts should be centered at once on other sources of irritation which, having been remedied, will produce good results.

Public Transit

Public transit is an important factor in relieving highway conditions. It would be difficult to estimate the number of automobiles highways are spared by this form of conveyance. Yet there is one medium used that adds somewhat to highway confusion. As may be easily guessed, it is the bus.

Very many city folk have a distaste for walking. They complain if forced to travel afoot more than a block. Transportation companies cater to this public aversion to exercise by establishing bus stops at intervals of at least every other block. It too often happens that these stops are midblock.

Such locations are a poor choice. It is not always easy for a bus to reach the curb at mid-block. The area may be occupied by or encroached upon by other vehicles. Then, too, some bus operators are not very particular about reaching the curb. They are content to park double. But whether or not the bus is pulled to the curb or parks outside other cars, either movement tends to disorganize traffic.

Near side intersectional stops present still another complex situation. Coupled with conditions mentioned above, there is the added one of pedestrians passing in front of the bus and into the path of oncoming traffic. This sort of thing further complicates matters in the highway.

Improving Transit Service

As I see it, two steps should be taken to remedy these situations. Even at the cost of public clamor, the number of mid-block stops should be reduced. Proper stop locations can be ascertained by a study of the heavy loading and discharging points. When these locations have been determined, they should be kept clear of parked cars. Sufficient space, approximately 90′, should be allowed for movements of busses into and out of the areas.

By transferring near-side intersectional stops to the far side, additional relief will be afforded. These latter locations have many advantages beneficial to highway travel. Inasmuch as parking prohibitions at intersections are generally better observed on the far side than on the near side, the former is better suited to a bus stop. It allows of easy access and exit. It eliminates almost completely pedestrians crossing in front of a bus and their conflict with oncoming traffic. Lastly, it precludes stopping on the near side on a green signal to discharge passengers.

One Way Streets

Judicious use of one-way streets can be relied upon to relieve the confusion in certain areas. This form of control will likewise eliminate the possibility of certain types of accidents. To be sure it does occasion inconvenience to some, but the compensations recommend its use.

Traffic Control Signals

Traffic control signals can greatly expedite traffic. Yet these same signals can be responsible for unnecessary de-

lay and congestion. Attention should then be paid to the proper timing of these devices. Of equal importance is proper synchronization of signals in series. Unless signals within 1,200′ of one another are interconnected, as advocated by the A.A.S.H.O., confusion and delay are bound to result.

Street Lighting

Facilitation and safety of traffic are in nowise served by some street lighting units. Certainly some are more ornamental than useful. Many are of such low intensity, they serve as a poor aid to both motorist and pedestrian. Because they fail to fulfill the purpose intended, they are really a waste of illumination. It will pay to examine into this matter.

Even efficient lighting units are at times made ineffectual. Located as they sometimes are alongside of or between trees, the rays of light are dispersed by foliage and occasion deep shadows during certain periods of the year. Trees adjacent to street lights should, then, be pruned if traffic is to be helped rather than hindered.

Pedestrians

Finally we meet with the problem of pedestrian use of the highways. There is really no great need for expanding too much on this. We are all pedestrians at times and we know fully that our movements in the highway are not always the result of good judgment. It is not, e. g., a mark of prudence to dash madly in front of an oncoming vehicle nor to step blithely from in front of or from behind a parked car without so much as a glance in the direction of approaching traffic. Many highway ills are directly traceable to this misuse of the streets.

Why do so many pedestrians act in this rash manner? The question has many answers. Some seem to be impelled by a sudden urge. The attitude of others appears to arise from the idea that they have a prior right in the highway. In this of course they err. Their rights, yes and their duties, are coequal with those of the motorists and nothing more. A pedestrian is obliged to exercise due care in the use of the highway just as is the motorist.

Efforts to instruct the pedestrian have, obviously, met with only slight success. Most of us persist in our misuse of the streets. In so doing we endanger not only our own lives but those of others likewise. Should this be longer tolerated or should the public resort to something more persuasive than education to prevent the heedlessness and the defiance of some among us?

A number of states have had recourse to ordinances as a means of preserving pedestrian order in streets. From reports, this method seems to have been productive of good. I for one am strongly of the opinion that these jay-walking laws are not only beneficial to pedestrians, but likewise to motorists. I really think the welfare of the country would be served were such laws put into effect on all urban streets in central areas.

Now I realize it is not easy to break with custom. None of us will take too kindly to absolute prohibitions respecting the parking of our cars or to resrictions on our personal movements in the street. Neither does the patient enjoy the restrictions ordered by the physician. But the urgency of the situation demands drastic treatment. Inconvenience will for a time follow, but like the patient who submits to the surgeon's knife, the public will be the better for the operation.

Traffic Congestion Can Be Relieved

by COLONEL HARLEY L. SWIFT *

THE recent city-wide public transit strike in Philadelphia, accompanied by the worst traffic jams in the city's history, once again made clear the fact that a city cannot function wtihout a public transportation system. When the street cars, trolley coaches and busses stopped, thousands jammed the streets in private automobiles and taxis in a vain attempt to get to work while additional thousands were unable to get to work at all.

The transit stoppage again proved the fact already known to traffic engineers and transit experts that our city streets are designed to move people, not vehicles. The movement of people is the lifestream of the city. The streets are the veins and arteries through which this lifestream flows. When this flow ceases, the city, like a human, dies; when it is impaired, the city is sick.

Traffic congestion impairs the smooth flow of the lifestream of the city. To have a healthy city, we must materially reduce traffic congestion.

Value of Transit

The great value of public transit in alleviating traffic congestion has been proven again and again in other cities where strikes or other difficulties have impeded operation of public carriers. In Washington, when the transit workers walked out, the wide boulevards of the nation's capital were crowded to overflowing with private cars. Washington police were faced with an unprecedented flow of traffic and tie-ups and congestion plagued the city from one end to the other.

Seattle, Lancaster, Boston and Reading have all seen public transit stoppages in the past few months and the result has always been the same—a vast intensification of private auto traffic with resultant multiplication of congestion, confusion and tie-ups.

The recent stopping of the operation of transit systems in several American cities for one reason or another has brought to light two basic facts. One is that public transit is vital to the life of the community. The second is that private automobiles cannot move all the people of a city.

The obvious solution to these two problems, and we must have a solution and a quick one if our cities are to function at all, is modernized and carefully planned public transit.

The late Charles Gordon of the American Transit Association said in 1945, "by no stretch of the imagination are there either enough space or enough resources to provide the facilities needed, if the planning is done on the assumption that everyone is to travel in private vehicles."

Forthright Planning

Many American cities, with forthright planners, have boldly taken the bull by the horns and already have plans developed for modern, efficient transit systems. They believe that, if the traveling public is provided with fast service, comfortable vehicles and properly designed routes, more people will prefer to travel by public vehicles, rather than drive downtown in their own automobile, with the present day difficulties of finding a place to park.

* Colonel Swift, transit consultant of EBASCO Services, just concluded a nation-wide survey of traffic conditions and transit modernization plans. He served for many years with the Cincinnati Street Railway Company. He was recently awarded the Legion of Merit for his outstanding work for the Army Transportation corps.

If this premise is true, and public opinion polls have indicated that it is, the traffic problem can be relieved without waiting for expensive expressways to be built to accommodate an increased load of private cars.

The most obvious solution and the one advocated by the great majority of city planners, is to use efficiently the present street space of our cities.

Figures obtained from transit surveys bear this theory out. The average peacetime load of an automobile is 1¾ persons. Thus it would require 29 automobiles to carry 50 persons. Yet these 50 persons and more could all ride in one public transit vehicle, occupying comparatively little street space. One street with three lanes for automobiles only, can move 3,700 persons per hour. The same street, with two lanes for automobiles and one for surface cars, can move 15,630 persons per hour.

A subway system can carry as many passengers per hour as twenty 4 lane elevated highways. A single lane road can carry 9,000 passengers per hour if they ride in gas busses, but only 1,575 in private automobiles. The average trackless trolley coach line can carry 10,000 passengers per hour.

To achieve maximum capacity for the nation's city streets at the minimum possible cost, improved public transit is one answer. The transit industry is exerting every effort to improve the attractiveness and comfort of every type of public carrier. Even greater improvements can be expected when busses, trolley coaches, street cars and other rapid transit vehicles begin to come off the assembly lines in greater volume.

Types of Transit

The various types of public transit vehicles must be used in their proper place to efficiently relieve traffic congestion to its fullest.

In cities where traffic density is exceptionally heavy, subways and elevated railways find their greatest effectiveness. New York and other large cities are using such rapid transit facilities to advantage in handling throngs of commuters and shoppers.

On other heavily traveled streets in large cities where subways are unwarranted, the modern street car which can handle a large number of riders and has the quick pick-up necessary to avoid delaying traffic, can be used.

In other cities with congested areas, the trackless trolley appears as the partial answer to the traffic problem. This vehicle, like the street car operates on electrical power, but like the gas bus can move from side to side in traffic and can discharge passengers at the curb. Their passenger capacity combined with their high rate of acceleration makes them suitable for use on heavily traveled routes.

The gas and diesel powered bus is to be found answering the traffic problem in a number of cities. It is an especially valuable tool on lighter passenger volume routes, particularly during rush hours and on feeder lines.

Expressways vs. Transit

Unfortunately, in finding a solution to our jammed streets, the thinking of a great many uninformed citizens is to put the cart before the horse. Detailed, expensive plans for expressways, modern cloverleafs and other futurama are being considered while the transit facilities are overlooked or neglected. Such expressways will not only cost untold millions to construct, but they will take years to complete. They will provide easier access to the surrounding countryside but will do little to ease congestion in the central business district.

Some of our cities have already begun this trend toward decentralization with the subsequent breakdown of the downtown shopping area. Large department stores have estab-

lished branches in outlying districts, for example. If this trend continues, the resultant loss in property and business values will be disastrous to many cities.

Parking

These foregoing elements of street and highway planning must be coordinated with a modern transit system in order to completely solve traffic congestion. Without a modern transit system congestion and parking problems will continue to plague our city streets.

The parking problem is closely related to the congestion situation. Parking facilities of our cities are already taxed to capacity and more. The average automobile driver wastes time and adds to congestion circling the blocks in a vain search for a place to stop. Businessmen are discovering that hundreds of vehicles passing their store do not mean hundreds of customers. Store owners are losing confidence in the desirability of a downtown location. Bringing the prospective customer downtown quickly and comfortably is a necessity.

Philadelphia has realized this problem and has taken steps to solve it. As a result of a traffic survey by the city, parking was prohibited on practically all of the streets in the central business district on January 2nd, with the complete backing of the merchants and businessmen. This opened up additional lanes for the use of moving traffic and consequently reduced congestion considerably.

The survey, made by the Philadelphia Bureau of Traffic Engineering under the chairmanship of Robert A. Mitchell, city traffic engineer, showed that the 14,000 cars parked at the curb carried only 24,000 persons or a little over 3 percent of the more than 726,000 persons who come into the downtown area during a typical weekday.

More than 76% of these 726,000 persons came into the business area by public transit facilities. Thirteen percent came by train, eight percent by private auto and the remaining three percent walked. This survey conclusively proves the importance of public transit facilities and the part they can play in reducing traffic congestion.

Wilmington is another city equally cognizant of the importance a modern transit system plays in traffic control. Experts have extolled the Delaware city's system as a model. Modern vehicles were introduced into the system several years ago and congestion has been considerably reduced.

The traffic problem in urban areas needs sober study if it is to be solved. Adequate planning is essential and it is equally obvious that vehicular congestion cannot be solved by visionary schemes which appeal to the popular fancy, but by sober consideration of the engineering and economic facts.

With intelligent planning along sound lines, utilizing the advantages of a modern and efficient public transit system our cities will be able to quickly relieve the ever growing problem of too many cars in too little space.

METERS PAID FOR FROM PARKING RECEIPTS

Orange, N. J., has completed payments for its 350 parking meters, it was announced by Revenue and Finance Director Bianchi. Final payment of $9,222.15 has been mailed. Total cost of the meters was $31,875.

Public Safety Director Reilly says the meters were installed in June, 1943. Under the contract with the manufacturer, 75 per cent of the meter receipts were applied to the payment. The final payment was made from an accumulated surplus in the city's share of the receipts.

The City Traffic Problem in North Carolina

by JAMES S. BURCH *

TRAFFIC officers and enforcement officials are interested in traffic mainly from the standpoint of traffic control brought about through actions of the driver. They are prone to consider that the driver is the only avenue of approach to the solution of all traffic problems. The public, too, is inclined to this approach.

Our interest is somewhat broader, and more fundamental. Our traffic interest relates to the physical facility, or road and street plant which the driver and his vehicle use. We are concerned, not only with the driver, but with the vehicle, the road or street, the signs, the visibility, the traction, the grade and the routing. Speed, with us, is a virtue if it is accomplished in safety. Best traffic service moves traffic at good speed and in safety.

This article does not purport to instruct in the enforcement of traffic laws and ordinances. Rather it is projected as a discussion of certain known characteristics, habits, customs and relationships of traffic to the streets and highway facility. If we can look at the basic causes of traffic phenomena, rather than at some of the results, we can understand the subject more clearly.

Street Purposes

A street has many incidental purposes, in addition to its service as a traffic artery. It is an orderly areaway for light and air; for pedestrians; for display of merchandise; for ingress and egress to stores, offices and homes; it carries water, sewer, telephone, gas, light and power facilities; *and* the downtown street has become a storage garage for the passenger car, and an unloading dock for the truck and bus.

Its basic function, and its most important service, however, is *to the motor vehicle in motion.* To the extent that it fails in this performance, it fails as a street, no matter what other purpose it may serve. To the extent that the street performance fails, the abutting property suffers. Our major objective, therefore, is *to serve the motor vehicle in motion.*

Traffic in motion can use only the *operating lanes*: that is, those lanes which are dedicated to, and protected for, the use of vehicles in motion. No matter how wide or how beautiful the street, if only sufficient width is available for the operation of two lanes of moving traffic, that is simply a two lane street—though it be 20 feet wide, or 120 feet wide. A lane should be at least 11 feet wide, and no part should ever be used for any other purpose than for traffic in motion. When, for instance, an angle-parked vehicle backs out into this moving lane, the principle is violated. Double parking, improper parking, etc. are other familiar violations of this basic rule.

Capacity

Now, what is the capacity of a pair of traffic lanes? Under certain con-

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The Traffic Engineer's Check List of Prismo Bulletins

√ BULLETIN 461—"PRISMO—THE SPHERE OF SAFETY"

This bulletin describes graphically the use of Prismo for centerlines, pavement markings, signs, markers and sundry specialty lines. Prismo Sphere Dispensing Equipment is illustrated as well as laboratory procedures at the Prismo Laboratories. Write for Bulletin 461.

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A treatise on the principles of reflectorization developed and technically presented by the Prismo Laboratories. Ask for Bulletin 443.

√ BULLETIN 244—"IT'S EASY"

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ditions, it may carry 2,000 to 3,000 vehicles per hour, and in safety. Under other conditions, it may develop serious congestion and deliver very few vehicles per hour. The major condition is the sustained speed of operation. This speed depends on *interference*—actual or potential.

Let's analyze that interference a bit. Put those two lanes out in the country, make them level and straight, shut off all side access, and provide plenty of view distance ahead. Such lanes, under favorable conditions, will be safe for 900 vehicles per hour at average speeds of 55 miles per hour. Now, put in driveways, filling stations, houses, hot dog stands, etc., along those lanes. At once, the prudent speed is cut down to 30 miles per hour. At that lower speed, vehicles can "close up" and move in a fairly closely-spaced train. The volume then may be increased to say 1,600 vehicles per hour. If now, we put in a few cross traffic streets, which require traffic signals, add angle parking on each side—as at a County fair, or on a busy street—we may decrease the average speed down to 10 miles per hour, and the volume may be reduced to 1,500 vehicles per hour.

So, those two lanes — without changing the lanes at all—will operate within very wide limits, depending on the interference, or the potential interference. The question then is—what do we want? Obviously, we want as high a sustained speed as safety will permit.

Here is what we can have:

High traffic volume and interference = Slow speed.

Moderate traffic volume and interference = Moderate speed.

Moderate traffic volume, no interference = High speed.

Low traffic volume, no interference = Very high speed.

High traffic volume, no interference = Moderate speed.

In the downtown business section, we *have* high volume and serious interference. Therefore, to obtain even moderate speeds, we must do one of two things: *either remove the interference*, or *decrease the volume.*

What can be done downtown to eliminate the interference? The major elements of interference are curb parking, cross streets and pedestrians. What can we do about them?

Curb Parking

Can we eliminate curb parking? About the best we can do is to regulate it, keep it out of the operating lanes, and ration it out to more people. All that parking time regulations can do will not create any new parking space, nor facilitate the movement of traffic. In fact, the short time parking *actually delays traffic* movements in the operating lanes more than long time parking. It interferes with moving traffic, *and* adds to traffic volume.

Parking lots and garages serve a fine traffic purpose; but they do not materially aid traffic in motion. When parked vehicles are removed from the curbs, more vehicles take their places. There is normally an unlimited supply of vehicles which park around the downtown area, and which would move into the downtown area if there were anywhere to park. These terminal parking facilities do serve the motor vehicle when idle, and are worthwhile. However, they do *not* serve the vehicle in motion.

If all stores and office buildings had adequate back alleys for delivery of merchandise, the people *might* be willing to authorize "No parking whatever any time" on such streets. That would, of course, create new operating lanes, which would either add more traffic capacity, or traffic speed, to the street. But that is not possible, except in very few isolated cases. Unless a

street can be so treated for a long distance, no advantage to moving traffic is gained. If any parking at all is permitted at the curb, that curb lane is cancelled out as an operating lane for vehicles in motion.

Cross Streets

Another serious interference is cross streets. Can we eliminate them? Obviously not; and we cannot run all the traffic east-west on Tuesdays, and north-south on Wednesdays, as Will Rogers once recommended. The intersection of the cross street must be used first by one, and then by the other directions of traffic. We can, and do, employ traffic signals to tell which group should move, and which should wait. That is the purpose of the signal. Such signals, when needed and when properly designed, installed and timed, are much better than no control; but, at best, the intersection can operate at considerably less than 50% of maximum capacity of the operating lanes. The stop and start delays, added to the waits, result in very low sustained operating speeds. "One-way" streets will help to some extent, if they are thoroughly planned and explained, and if the public will tolerate them. Even at best, though, the intersection causes serious delays which simply cannot be avoided.

Pedestrians

In the vicinity of tall buildings, and in busy shopping sections, pedestrians add much to traffic delays, especially where vehicle turns are permitted. That is really the major reason for the "No Turn" and "No Left Turn" regulations which are found at so many corners. It is mainly delay caused by the pedestrian, rather than the cross or turn traffic which usually makes these turning restrictions necessary.

It is obvious that we cannot eliminate the pedestrian. He is not only vital to our economy, but he occupies much less street space than if he were a driver; and space is what we need. Unfortunately, it is very difficult to control him, but the trend is definitely toward pedestrian control by law—not only to protect him, but to facilitate traffic movement.

So there are the major street interferences: parking, cross streets, and pedestrians. Very little can be done about either to facilitate traffic in motion. Assume the driver is willing to put up with it, and lose valuable time and gas. What happens?

Results of Congestion

There are several things that were happening before rationing and that will continue to develop now that transport is returning to normal. In future years the situation will get worse, unless we make it better.

First, the driver covers several blocks looking for a parking space, thereby adding unnecessary traffic-in-motion to the already-crowded operating lanes. Parking garages and lots will aid materially here.

Second, having difficulty in parking, he is discouraged from trading downtown, and stores open up out in the suburbs to serve him. The downtown business section loses his trade, property values decline, empty stores become more numerous, and city-taxed valuations are reduced. The much discussed "blight" takes hold downtown.

Third, being unable to get through the business district without delay, he drives "around it," using residential streets which were once quiet, safe, clean and pleasant. As these residential streets gain more traffic, the owners move out to the suburbs, and the property becomes less valuable. More blight.

Fourth, manufacturing plants find that their employees cannot find parking space, and are delayed by fighting

congested traffic. Additions to the plant are not made, and branches are set up elsewhere. More blight.

Fifth, a large percentage of our city and town retail trade comes from rural purchasers. If these people are discouraged by traffic congestion, delays and lack of parking space, they are discouraged from returning to purchase again. They will tend to shop where traffic conditions are more favorable, or use mail order methods. Still more blight.

Sixth, through drivers soon become irritated by serious delays in passing through the town, and "go some other way" to completely avoid the town. While there may be no actual business lost, the town loses the advertising value of its name, if the trip goes nowhere near it.

There are many other aspects of the town traffic problem which might be mentioned, but this outline makes clear the major undesirable features, as well as the impossibility of a complete solution through the use of the techniques which we have been employing. We have found that the major purpose of a street is to provide for traffic-in-motion; that downtown street vehicle speeds are too slow, and that none of the usual treatments will increase to any important extent the speed of traffic in motion. Unless we are to be satisfied with slow speeds—10 to 15 miles per hour downtown—from now on, with congestion and attendant accidents, we must look toward treatments which are more basic, even if they represent new departures.

I would like to stress that I am not trying to depreciate the importance of the work of traffic engineers in their efforts to improve conditions. This is important, and should be continued and intensified. Also we need all the enforcement we can get. The point is that mere traffic control, regulations and other such treatments are mere palliatives, and are not solutions. They will not establish free flow for vehicles-in-motion in downtown areas where volumes are high.

Reducing Traffic Volume

The only real approach to a solution is to decrease the moving traffic volume in the downtown area. How can this be done without adversely affecting the driver or the downtown business?

Fortunately, the volume can be materially reduced. There are a number of trips which pass through the downtown area because there is no other way, or no better way, to get from their origin to their destination. If some faster route could be developed, a large number of these trips would be diverted to that route and away from the downtown business streets, thus providing traffic relief for them, permitting more desirable speeds and better conditions generally. Traffic moves downtown with relative ease in off-peak, as compared to peak hours. The only major difference, of course, and the only reason, is that the traffic volume is reduced during off-peak hours. And, therefore, the speed of movement is increased.

How can such relief routes be developed? There, a special study is necessary in each city; and we cannot generalize further, except in broad principles. This study should first find out where the trips start, where they want to go, and how many there are of each trip. This means an Origin-Destination Survey of traffic. We have made such surveys at four North Carolina cities, with very illuminating results.

When we know how many there are of each class of trip—zone to zone, zone to highway, highway to highway—we can plot these trips out and actually see where these relief routes should be. We can take into account the major traffic "generators," such as

truck terminals and warehouses, tobacco sales warehouses, rail depots, bus stations, hotels, major shippers and the like.

Knowing where the route should be, for greatest service, we face the question of feasibility; and here we run into complications in the form of expensive property, cross streets, railroads and rail yards, cemeteries and many other physical difficulties.

The job then becomes one of location; but we must know something of the design features of this traffic relief route, and we must remember that it will be expected to serve the needs of the city for perhaps 50 years to come, if not forever. So no temporary or makeshift design will do; no compromise should be considered.

It must have the features of high capacity at high speeds; otherwise, it will not attract traffic from downtown. This requires:

1. Adequate number of operating lanes of adequate width.
2. Long sight distance; minimum grades and curvature.
3. No cross streets at grade.
4. No railroad crossings at grade.
5. No pedestrians.
6. No parking.
7. No side access, except at a few well - spaced, fully - controlled points where no interference to traffic in motion will be created.
8. Special interchange features and approach streets.
9. A remodeling of streets which approach the interchanges.

These requirements mean that, from a practical standpoint, we can seldom utilize any existing street. We must either go through undeveloped property, or very cheap property, to avoid more than a minimum of disruption. In some cases, whole blocks of cheap property must be sacrificed. This is neither an easy nor a cheap treatment. But either we take the treatment, or suffer with the disease. There is no alternative.

The arterial routes or freeways would be protected by law, and by physical barriers, so that they would be insulated for the future against interference of all types. If we do not insulate them, they will soon become merely slow traffic streets and will not be worth the cost and effort. Such a traffic relief route may be called a Freeway or Limited Access Arterial Highway. It carries high volumes at high speeds in safety. It removes unnecessary traffic from downtown streets, and thereby increases the traffic facility of these streets.

Freeways have been built in a number of cities, parks and suburban developments; and hundreds of them are planned for the post-war era. They should be very carefully planned, not only because they are expensive, but because of the effect they may have on the growth of the city. We should use no guess work or offhand opinion about them, and should use all the factual information we can get in their location, design and general planning.

We do not hold these "freeways" out as complete solutions to traffic problems. They are not. They will be greatly beneficial in a few major particulars, as follows:

1. Transferring traffic from downtown streets, thus decreasing the volume on these streets, and increasing the speed of those vehicles which must use those streets, and in safety. Improving property values.
2. Traffic which uses these freeways will operate at higher speeds—in safety—with dollar savings in travel time. This is true for urban and for rural traffic. The built-in safety features will serve to lower the accident rate.

The freeway will not improve parking conditions to any extent. That is a separate problem. The freeway serves vehicles in motion.

Parking Facilities

The other great traffic need is for idle vehicles—that is, more parking space where it is needed. Obviously, there are but two possibilities here. Either provide terminal facilities downtown for the vehicles which want to park downtown, or else force the drivers to use busses or taxis. Either solution is satisfactory; it is up to the drivers and the people to decide which they want. The lack of parking space is already forcing many drivers away from downtown.

If we want more drivers to come downtown, then more terminal parking facilities must be provided. The downtown streets cannot act as storage garage for half the cars in the town. Neither the property owner nor the driver has a vested right to use the city street for car storage. But even if the street is so used, the space is far from adequate.

What is needed is storage space for those cars: parking lots, parking garages and special-built parking structures. The important thing is to put these facilities in the right places, and have enough space available, not only for *now*, but for the future. Careful studies are required on this question of "Where and how much?" Internal Origin-Destination Surveys will indicate the needs.

How can those parking terminal facilities be financed? I would suggest two features. The city buys the land and builds the facility, leasing it out to a private operator. The operator would charge reasonable parking rates, and the city would regulate the rates and the quality of service. The city would also use the returns from parking meters to aid in the financing. Thus, the parking public—and only that part of the public—would be taxed with the costs of the facility created and operated for them. The cost of parking then, would be a toll, and not a general tax. Those who do not park downtown would bear no part of the cost.

Summary

The solution then, points in two directions, assuming we have adequate legal and physical regulations, properly enforced:

1. Freeways for traffic in motion.
2. Parking terminal facilities for idle vehicles.

Both of these are necessary, if we really want to make substantial improvement. Both require space, and are based on the fundamental fact that two bodies cannot occupy the same space at the same time. If we want these improvements, we can have them, and they can be self paying, in the basic economic sense. If we are satisfied to continue as we are, we can do that; but, conditions will get worse, and traffic law enforcement will continue to be more expensive, difficult and distasteful. And, the longer we delay, the more difficult will be the solution. We can make very little more headway through laws, regulations and enforcement, as important as they are. The limit has been reached insofar as the ability of the driver is concerned; that is, even if all drivers were the very best, the downtown traffic problem would remain.

We have a saturated condition. The facilities are taxed to their capacity, and cannot operate efficiently. We simply need more capacity, which means more facilities, carefully planned.

Reprinted from POPULAR GOVERNMENT, University of North Carolina, March, 1946.

NATIONAL COMMITTEE PUBLIC OPINION POLL

Ninety-four percent of America's adult population recognize street and highway traffic conditions as a serious menace and are willing to adopt stern measures to correct them, according to the summation of a nation-wide opinion research poll released by the National Committee for Traffic Safety.

The poll indicates that although seven out of every ten adult Americans think of better traffic conditions in terms of penalties and stricter law enforcement, when presented with three alternatives—law enforcement, education and engineering—and asked which they think will be the most effective in cutting down accidents, the people divide almost equally. However, reckless and drunken driving received emphatic comment from a high percentage.

The poll was made by the Opinion Research Corporation of Princeton, N. J., and covered every geographical section of the United States. A specially prepared set of questions purporting to elicit a full-scope report on the American public's thinking on the matter was the instrument used in conducting the poll. The unmistakably factual results that it produced are calculated to make clear to the nation's legislators, enforcement authorities and accident prevention specialists that the American people are acutely conscious of the seriousness of the traffic accident problem and are willing to stand squarely behind the enactment and enforcement of laws that will make the nation's streets and highways safer both for motorists and pedestrians.

Complete copies of the results of the survey were delivered to the various standing committees of The President's Highway Safety Conference, which was held in Washington, D. C., May 8, 9 and 10.

Speed Limit Favored

A substantial majority of the people ask for, among other things, maximum highway speed limits of 50 miles per hour or *under*, and more safety education and safety engineering, the elimination of drunken driving, pedestrian regulation as well as other vehicular controls, and—this above all—uncompromising enforcement of the traffic laws.

In order to get this protection—and keep it—the American people are willing to pay additional taxes and even take the consequences if and when they break the rules themselves. Such are a few of the revelations of the country's first full-dress survey of public opinion on traffic safety.

Asked if they regard traffic accidents as a serious problem,

94 per cent answered, Yes
5 per cent answered, No
1 per cent didn't know

Then asked, "In the next year or two, do you think there will be more traffic accidents than there are now, or not?"

77 per cent answered, more
18 per cent said, no more
5 per cent had no opinion

But this gloomy outlook by such a heavy majority of the people was brightened by the fact that 61 per cent were convinced that an increase in traffic accidents could be prevented, and the present rate even reduced if proper preventive measures are employed. A sizeable 28 per cent, however, pessimistically believe there always will be as many accidents as we have now, 8 per cent expect an increase in spite of anything that may be done, while 3 per cent have no opinion.

The people have no doubts, however, about the most effective remedy for traffic accidents. Even though the pub-

lic has a high regard for traffic engineering and education as a preventive measure against accidents, law enforcement is in the forefront of their thinking today.

More Arrests and Fines

"Enforce the law—strictly!" they exclaim almost to a person. "Fine them! Make them obey the law." So runs the chorus of public opinion with respect to this means of reducing highway and street mishaps. There are variations of opinion as to which particular laws should be more sternly enforced but on the broad question—

71 per cent demand more strict enforcement
23 per cent demand at least present enforcement
5 per cent had no opinion
1 per cent want less strict enforcement

Drunken and reckless driving top the list of offenses which the American public wants dealt with severely. Speeding, careless driving, glaring headlights, failure to give signals before stopping or turning, and passing on curves or hills—all common causes of street and highway accidents—are formost among the statutes the people want enforced more strictly. For minor offenses they are willing to let policemen reprimand offenders, but for serious violations they demand "more arrests and more fines."

The report shows that three persons out of 10 either have been in a car accident or have been hit while walking. Shocking as it may seem, the poll disclosed that 24 per cent of all of the American people have been arrested for some traffic violation. (It is noteworthy that this figure is based upon the country's entire adult population. The corresponding percentage of adult *drivers* would be much higher). These traffic violators are 2 to 1 of the opinion that they deserved what they got, and 68 per cent of them want the law enforced more strictly. Two-thirds of these previous offenders approved the conduct of the arresting policemen and, of this group, 78 per cent unhesitatingly said that, since that time they have been more careful about driving and more respectful of the law.

But the American people still have no more love for the "bawling-out" type of policeman. The survey developed that one out of every five persons in the country has suffered that embarrassing moment. Of that group, 37 per cent admitted that it made them more careful, 48 per cent said they would have been just as careful if the officer had spoken to them courteously, 11 per cent declared they would have been *more* careful, and 4 per cent dodged the issue. Most of these people admitted, however, that they deserved a lecturing.

A majority of the people—though a slim one—said they wanted their traffic officers neither hidden nor disguised. On this point 56 per cent declared they want to be able to see and recognize their traffic policemen "easily." Thirty-eight per cent, however, said they would be willing to have policemen placed in inconspicuous places and use unidentified cars. "No opinion" was the verdict of the remaining 6 per cent.

Balanced Program Supported

While the American people are firmly insistent upon law enforcement, the survey clearly demonstrated that they will also support education and engineering as sound methods of making this a much safer country as far as accidents are concerned. Careful testing of their opinion on this point showed that they think of enforcement first because they are better informed about it than other means of preventing accidents. But when the possibilities of education and engineering were suggested, the public rated all three

almost evenly, as shown in the answers to the following question:

"Which do you think would do the most good in cutting down accidents—to *make* people obey the traffic laws, to *educate* people to be more careful, or to *build* specially planned highways, pedestrian crosswalks and guards to make accidents less likely?"

Make people obey laws, said 31 per cent.

Educate people, said 34 per cent.

Build highways and walks, said 30 per cent.

All are equally good, said 7 per cent.

No opinion, said 3 per cent.

When asked their opinion regarding high school courses in driver education, including the principles of good driving, the people strongly favored it. Seventy-eight per cent answered this question emphatically in the affirmative, while only 16 per cent disapproved and 6 per cent had no opinion. A substantial majority of the people—60 per cent—went so far as to say the high schools should teach their students how *actually* to drive a car.

Will Pay More for Safety

The people are willing to pay higher taxes for greater safety, but while 68 per cent of those who favor law enforcement as the best accident remedy said they would accept a tax boost for safer highways and crosswalks, only 52 per cent were willing to foot the bill for more policemen—thus indicating that they think present law enforcement agencies can do a better job if, perhaps, they make enforcement tough and impartial.

Two thirds of the adult American public favors a maximum speed of 50 miles an hour or less on an open highway, while only 6 per cent would permit more than mile-a-minute speed under any conditions. Here's how public opinion shapes up on the question of speed maximums:

30 miles per hour	1 per cent
31 to 40 m.p.h.	18 per cent
41 to 45 m.p.h.	14 per cent
46 to 50 m.p.h.	32 per cent
51 to 55 m.p.h.	7 per cent
56 to 60 m.p.h.	15 per cent
61 to 70 m.p.h.	5 per cent
71 to 80 m.p.h.	1 per cent
Qualified answer	3 per cent
Don't know	4 per cent

Thus, while 65 per cent of the people favor a speed limit of 50 miles per hour or under, 28 per cent would raise it above that figure.

Finally, a generous majority that does not fall too far short of being unanimous are of the opinion that —

1. Motor vehicles everywhere should be given periodic official inspection.

2. All drivers should pass not only a satisfactory vision test, but as to their general physical fitness also.

3. Driver licenses should be required.

4. Every applicant for such a license should pass a rigid test of his or her ability to drive and demonstrate a thorough knowledge of traffic rules and regulations. Forty per cent of the people even stated that drivers should be re-examined regularly before having their license renewed.

The poll was planned and directed under the auspices of the National Committee for Traffic Safety, and sponsored by the National Safety Council. The survey was supervised by the following committee: Julien H. Harvey, National Conservation Bureau, chairman; J. S. Baker, National Safety Council; John W. Gibbons, Automotive Safety Foundation; Frank W. Hubbard, National Education Association; Burton W. Marsh, American Automobile Association; Robert E. Raleigh, International Association of Chiefs of Police, and Dr. Herbert J. Stack, Center For Safety Education of New York University.

YALE ANNOUNCES TRAFFIC ENGINEERING FELLOWSHIPS

Ten Graduate Fellowships in Traffic Engineering are announced by the Bureau of Highway Traffic of Yale University. These Fellowships amount to $1400.00 each and provide for a full academic year of graduate study beginning September 23, 1946. The Fellowships have been made possible through a grant to the Bureau of Highway Traffic from the Automotive Safety Foundation.

This graduate course in Traffic Engineering provides a broad foundation in the techniques of highway traffic operation and is designed to give the student increased skill and ability in the analysis of traffic problems and to equip him with a thorough knowledge of traffic engineering.

Mr. Theodore M. Matson, Director of the Yale Bureau of Highway Traffic, in announcing the availability of Fellowships stated "There is an increasing need for professional traffic engineers in highway traffic work, in view of the acute street and highway transportation problems which now exist in nearly every community and which show every promise of growing worse before relief can be obtained."

"Because of accidents and congestion, traffic operations are being given increased attention by state and municipal officials, not only in the development of new and improved roadway and parking facilities but also in the treatment of existing traffic facilities," Mr. Matson said.

Fellowship awards are open to men who have been granted an engineering degree by an accredited college. "In addition to those who are successful in competing for the Fellowship awards the course is open to qualified veterans under provisions of the G. I. Bill of Rights," Mr. Matson stated. As in former years, it is also expected that there will be students from city or state highway departments who will enroll either on their own or with some financial support made possible through special assignment by their employers.

The closing date for applying for Fellowship is June 1. Additional information concerning the course and Fellowships may be obtained by writing to the Bureau of Highway Traffic, Yale University, New Haven 11, Connecticut.

CLEVELAND OFFERS UNIQUE FRINGE PARKING LOT WITH SHUTTLE BUS SERVICE

Mr. Walter MacCarter, Manager of the Cleveland Transit System, outlined unique bus service being offered in that city before the recent A.S.C.E. meeting in New York. The newly inaugurated loop bus service is now given from a privately owned and operated parking lot located at Euclid Avenue and East 24th Street to points in the central business district. The lot handles a capacity of 600 cars and is just outside of the major business district. The parking fee is 15c for all day. This, plus two 5c rides on the loop bus, brings the total cost for all day parking and transit fee to 25c which is cheaper than many of the downtown lots and eliminates bucking downtown congestion to find parking space. The shuttle bus service (one of the most profitable in the entire system, producing a revenue of 54c per mile) is provided on a 2½ minute headway. It is offered from 8:00 A. M. to 5:30 P. M. to attract off-peak patrons. Since inauguration of this service some weeks ago, the parking lot is filled to capacity and there is now an overflow to adjacent streets. This indicates justification for the service and that it should be expanded not only in Cleveland, but in other cities in order to relieve downtown congestion. Cleveland also offers express bus service from outlying sections at 15c cash fare. In addition, a combination express and local service at regular token, cash, or weekly rates is operated as well as regular local service.

DESIGN FOR A MORE PROSPEROUS COMMUNITY

IT'S almost axiomatic that prosperity follows paths of light.

Install good street lighting in downtown areas and business picks up for local merchants. Light main thoroughfares properly and travelers are invited to drive through your town, spending as they go. Illuminate factory areas, and new industries are attracted, offering bigger payrolls for your taxpayers. Banish gloom from residential districts and gain new and more desirable citizens.

There's almost no end to the multiple benefits which good street lighting gives the community—and **good street lighting is an improvement the voters can see.**

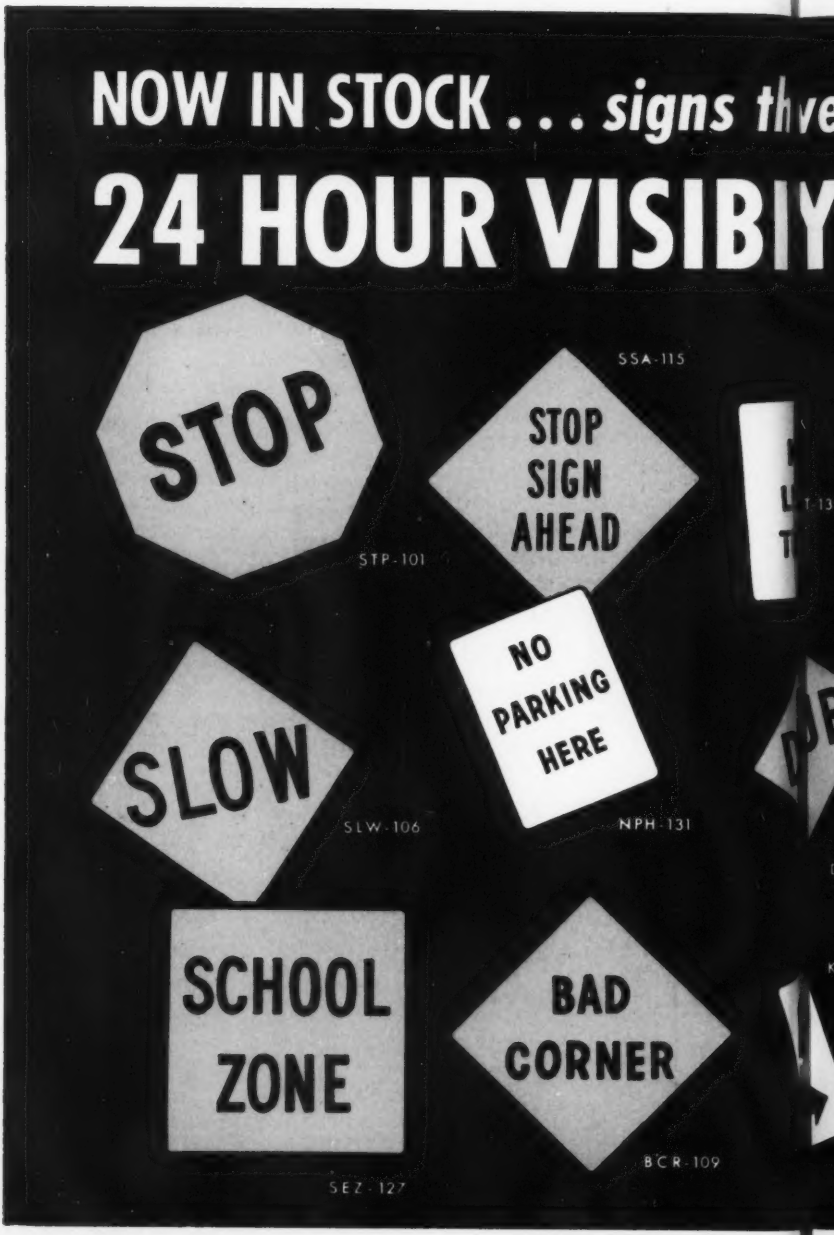
Remember this as you plan your activities for the next few months. Move "street lighting improvement" to the top of your "must do" list—and watch your good will grow.

For intelligent advice and assistance, call in the street lighting specialists of your local electric utility company.

For a free copy of the new minimum street lighting standards just published by the Illuminating Engineering Society, write The Street and Traffic Safety Lighting Bureau, 155 E. 44th St., New York 17, New York.

Good Street Lighting — The Sign of a Good Place to **Live.**

GOOD STREET LIGHTING • THE SIGN OF A GOOD PLACE TO *LIVE!*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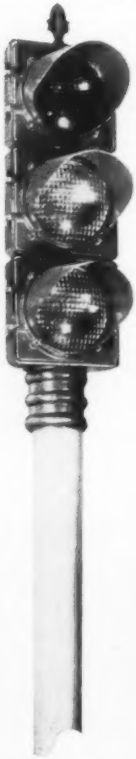

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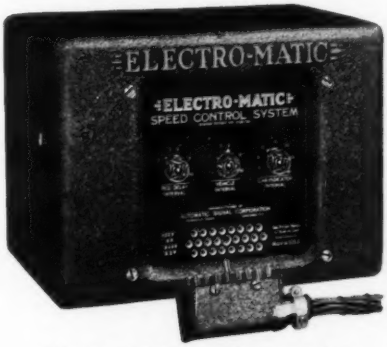
ELECTRO - MATIC

SPEED CONTROL SYSTEM



Model S-20 Speed Controller

ELECTRO-MATIC SPEED CONTROL SYSTEMS limit vehicle speeds on curves, underpasses, bridges, approaches to towns, school zones and the like. The elements of the system are an Electro-Matic Speed Controller, Vehicle Detector, Traffic Signal, and sometimes a C-A-R Indicator Signal. Vehicles approaching the controlled zone at allowable speeds proceed without stopping, on a "Go" indication. The speeding motorist is confronted by a red signal at the stop line if his speed is not reduced to a safe limit. In addition provision is made for signalling the approach of a vehicle from the opposite direction where conditions make it desirable.

"Traffic Regulation With Intelligence"

AUTOMATIC SIGNAL CORPORATION

NORWALK. CONN. CHICAGO, ILL.

BALTIMORE POINTS WAY OF THINGS TO COME IN PARKING

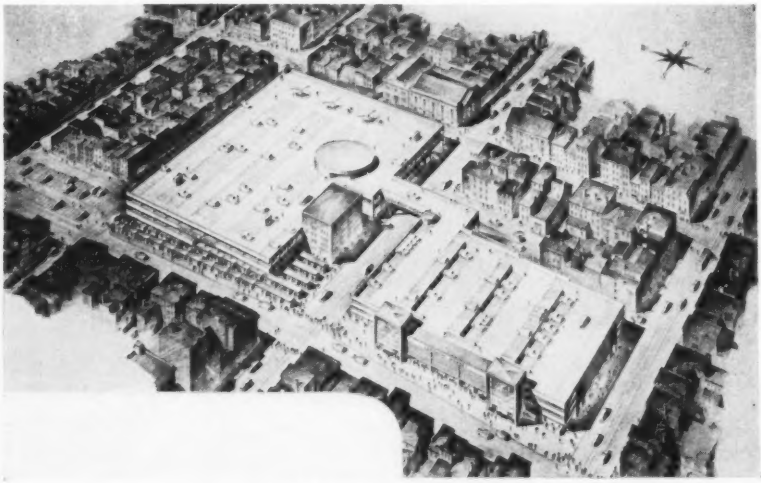
Parking cars on the roof is not new, but the project planned by Baltimore is spectacular by reason of its size.

Baltimore's famous old Lexington Market, long out-moded but still going strong, is to give way to a modern structure which with ground space will provide parking for 800 shoppers' cars, most of it on the roof, as shown in the attached drawing.

Legalized by the Maryland General Assembly, the project is strongly supported by businessmen and public officials. It is reported that the necessary private capital is in sight. The estimated cost of $2,000,000 would be met by revenue bonds with earnings from store and shop rentals and reasonable parking fees. When paid for, the building would revert to the City.

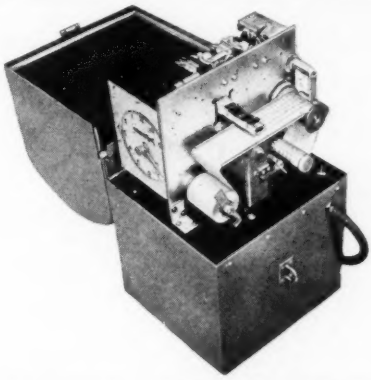
The combination of store and parking space is held by Baltimore businessmen as a better capital investment than parking garages alone. In addition to the Market project, Baltimore businessmen and city officials are considering construction of several multi-deck parking garages with ground floors for stores and shops. Like the Market project these would be located near the central business district and would be on sites now occupied by decadent structures.

Baltimore's activity is attributable to downtown congestion, prospective loss of business, property evaluation losses in the downtown area which have dropped $53,000,00 or 30 per cent in the last 10 years, and the projected construction of an express highway through the downtown area which would add materially to parking space needs.



Lexington Market Shop and Parking Project

Located near the central business district, the project will accommodate 2,400 shoppers' cars daily. Costs of the $2,000,000 structure are to be met by rentals to foodstuff concessionaires and by reasonable parking rates.



STATE ENGINEERS
PLAN FUTURE ROADS WITH

Traficounter

State highway engineers, the original users of Traficounters, have this to say about the value of these precision built instruments in their highway planning.

1. "Our portable traffic recorders are used periodically for traffic counts on urban streets and for determining changes in traffic at scattered points on our rural highways."

2. "Mechanical counting equipment supplies most of the traffic information gathered."

3. "In every case (of planning for new roads and improvement of old roads) the value of traffic plays a very important part in determining the extent of such work and mechanical counting equipment has been found to be essential in economically gathering such data."

The Trafficounter is twice as fast as any other counter of motor traffic; essentially an electric counter which records the over-lapping cars as they cross the detector. It assures accuracy, is on the job 24 hours a day, and will save many man hours. **Streeter-Amet Company**, 1726 Belle Plaine Avenue, Chicago 13, Illinois.

STREETER-AMET

GREATER NEW YORK ANNUAL SAFETY CONFERENCE HELD

The 16th Annual Safety Conference and Exposition sponsored by the Greater New York Safety Council was held at the Pennsylvania Hotel in New York, April 9, 10, 11, 12.

Interest and enthusiasm reached a new point this year in the resumption of this annual affair after postponement last year due to the war.

Sessions and panel discussions of the Conference were devoted to all fields of safety. Of particular interest were the sessions of the Vehicle and Traffic Section with meetings devoted to Traffic Speed Policies, Handling Traffic on Existing Streets, Over Age Automobiles, Rehabilitation and Training of Disabled Drivers, and two Commercial Vehicle Sessions.

Speed Panel

The panel discussion of Traffic Speed Policies was held on Tuesday, April 9, the first day of the Conference, under the very able chairmanship of Wilbur S. Smith, Secretary-Treasurer, I. T. E., Associate Director of Yale Bureau of Highway Traffic and Technical Advisor to the Eno Foundation.

Participants in the panel discussion of speed were Donald Blanchard, Secretary and member of the Technical Board, Society of Automotive Engineers, Charles M. Noble, New Jersey State Highway Engineers, whose paper on speed policies appears in this issue, Stuart Hawley, Director of the Texaco Company Touring Service, Paul Haviland, Superintendent of the Delaware State Police; Henry Osborne, member I. T. E., Traffic Advisor, City of Buffalo; T. Elmer Transeau, Director, Pennsylvania Bureau of Highway Safety.

Fred Roff, President of I.A.C.P. and Chief of Police of Morristown, New Jersey was unable to take part as scheduled due to illness. W. Howard Sharp, Engineer of Highway Control of the Connecticut Highway Department was also unable to take part. Mr. Mills of the Connecticut Highway Department participated in place of Howard Sharp.

Traffic on Existing Streets

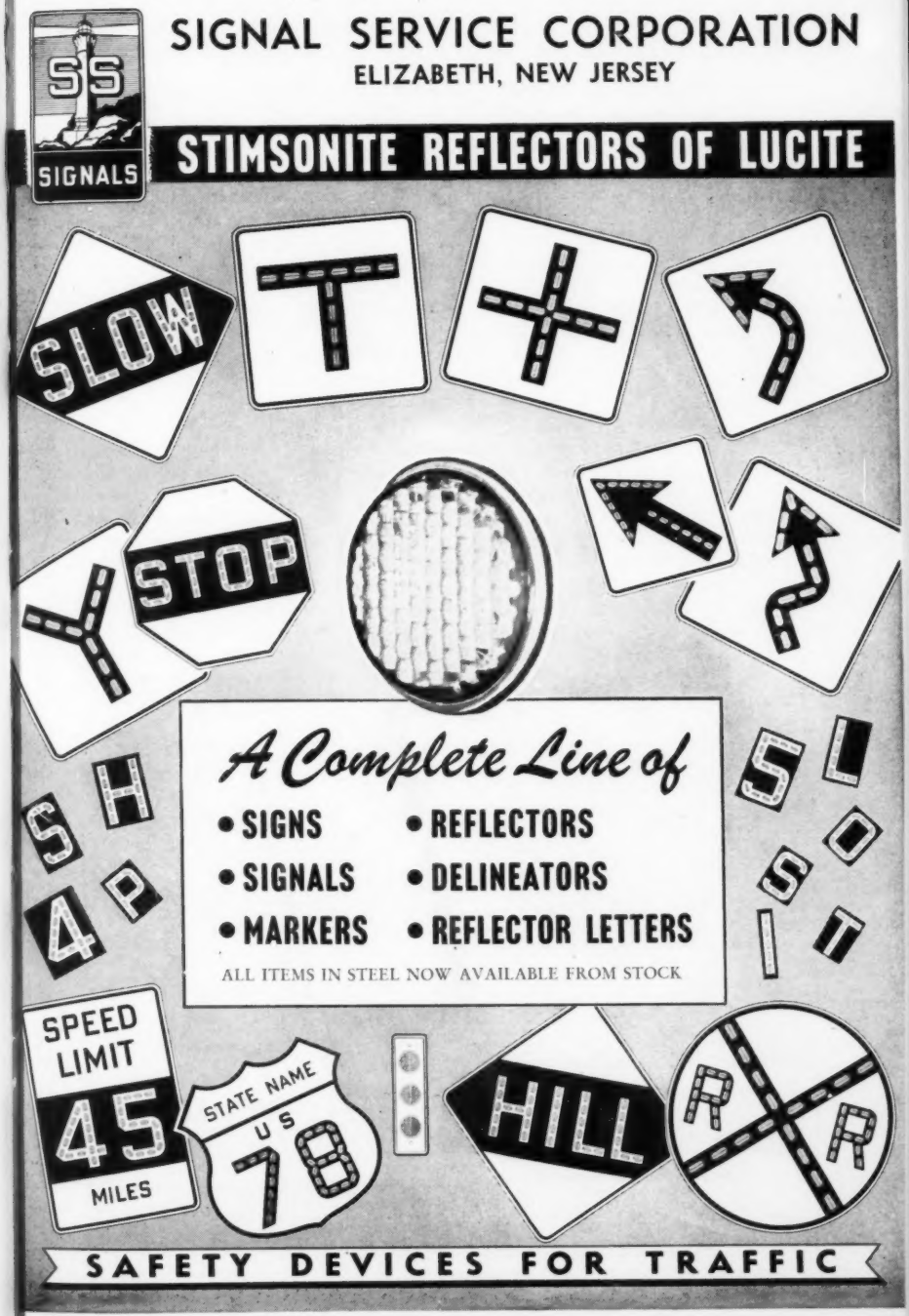
Considerable interest was shown in the points discussed during the panel, "Handling Traffic On Existing Streets." Modernization of control devices, adequate provision for transit, one-way movement, and better distribution of traffic in congested areas were highlights of the discussion which followed a paper prepared by Edgar F. Copell, Highway Traffic Engineer of Massachusetts. Mr. Copell, whose paper appears in this issue, was unable to attend and the paper was presented by Professor Charles Tilden, formerly Professor of Civil Engineering, Yale University.

Chairman and vice chairman, respectively, of the meeting were Guy Kelcey, Consulting Engineer and Merwyn A. Kraft, Accident Prevention Engineer of the American Transit Association.

Those participating in the panel discussion of Mr. Copell's paper were: Theodore M. Matson, Director, Bureau of Highway Traffic, Yale University, Richard W. Siver, Traffic Engineer, National Conservation Bureau and Wallace A. Braun, Traffic Engineer, Baltimore, Maryland.

TIRE TYPE MARKINGS

Under a new order of the Civilian Production Administration, tire manufacturers no longer have to mark each synthetic tire with the "red" dot symbol. Tires will continue to show a permanent brand mark indicating the type of synthetic rubber used in manufacture—and the usual letter "S" on both sides of the casing. —*Highway Research Abstracts*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SIGNALS
SIGNAL SERVICE CORPORATION
ELIZABETH, NEW JERSEY
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• SIGNS • REFLECTORS
• SIGNALS • DELINEATORS
• MARKERS • REFLECTOR LETTERS
ALL ITEMS IN STEEL NOW AVAILABLE FROM STOCK
SLOW
SHOP
SPEED LIMIT 45 MILES
STATE NAME
U S 70
HILL
R R
SAFETY DEVICES FOR TRAFFIC

NATIONAL TRAFFIC SAFETY CONTEST WINNERS

Iowa and Wichita, Kans., were named grand prize winners in the National Traffic Safety Contest conducted by the National Safety Council.

All 48 states and 1,382 cities participated in the contest, which covered the calendar year of 1945.

Three other states and five other cities won first place awards in their divisions of the contest. States were grouped geographically and cities by population.

A special award was made to Oak Ridge, Tenn., home of the atomic bomb, for its achievement in holding down traffic accidents in the face of mushroom growth and soaring traffic volume.

States which won first place in their divisions were:

Texas in the Southern division.

Connecticut in the Eastern division.

Utah in the Western division.

Iowa won first place in the Midwestern division, in addition to winning the grand award.

Cities which won first place in their population groups were:

Buffalo among cities of 500,000 or more.

Oakland, Calif., in the 250,000 - 500,000 group.

Evanston, Ill., in the 50,000 - 100,000 group.

Lynchburg, Va., in the 25,000 - 50,000 group.

Stillwater, Okla., in the 10,000 - 25,000 group.

Wichita won first place in the 100,000 - 250,000 group, in addition to winning the national grand award.

In addition to the foregoing awards, the contest judges cited other states and cities and named a special honor roll of 130 cities with populations between 5,000 and 10,000 which went through 1945 without a traffic death.

BLUEPRINT for BETTER HIGHWAY GUARDS

TUTHILL Guard Rails possess these unusual features:

1. High visibility.
2. Deflective action.
3. Absorption of impact.
4. Quick installation.
5. Low upkeep costs.

IN "blueprinting" safety for your highway construction, be sure to draw in TUTHILL Highway Guards — noted for their spring-bracket action and curved panel construction. These features insure deflective action and improved visibility for safe driving.

SPECIAL NOTE!

TUTHILL Guard Rails are now available!

Pacific Coast Manufacturers and Distributors

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LOS ANGELES, CAL.

TUTHILL SPRING COMPANY
764 POLK ST...CHICAGO 7 ILL.

THE HUNT COMPANY · MICH · EST. 1920 · DETROIT 21

HIGHWAY SIGNS
STREET NAMES
PARKING SIGNS
STOP SIGNS

CATALOGUE ON REQUEST

All signs embossed on U. S. Standard 16 gauge Steel. Baked-enamel Colors.

PROMPT DELIVERY OF ALL ORDERS

POSTS

STANDARD HIGHWAY SIGN POSTS

7 ft., 6 in.
10 feet
12 feet

The Hunt Company, 2405 W. McNichols Road, Detroit 21, Mich.

ITE NEWS AND PERSONALS

Members of the I.T.E. Taking Part In the President's Highway Safety Conference

A number of members of the Institute of Traffic Engineers are actively participating in the preparation of reports and other work of the Committees of the President's Highway Safety Conference. Members who have been officially invited to participate in the President's Highway Safety Conference are as follows:

Earl Allgaier
Louis A. Andriacchi
James S. Baker
Donald S. Berry
J. W. Arch Bollong
William C. Brandes
W. Graham Cole
Roy W. Crum
Norman Damon
James E. P. Darrell
Ned Dearborn
A. F. Dickerson
Henry K. Evans
John T. Gibala
Harold F. Hammond
Harry H. Harrison
Julien H. Harvey
Reyburn Hoffman
Robert S. Holmes
Howard F. Ilgner
Rufus G. Jasper
Pyke Johnson
J. Edward Johnston
Guy Kelcey
C. Donald Kennedy
Merwyn A. Kraft
F. M. Kreml
Dwight B. McCracken
J. Carl McMonagle
Donald M. McNeil
Thomas H. MacDonald
Burton W. Marsh
Theodore M. Matson
D. Grant Mickle
Robert A. Mitchell
Roger L. Morrison
Harry E. Neal
Charles W. Prisk
Earl J. Reeder
Kirk M. Reid
Lloyd Reid
Paul S. Robinette
W. L. Robinson
L. Theodore Scott-Smith
Thomas J. Seburn
Matthew Sielski
Wilbur S. Smith
Leslie J. Sorenson
T. Elmer Transeau
Charles M. Upham, Sr.
Arnold H. Vey
Wayne N. Volk
Joseph L. Wehmeyer
Sidney J. Williams
Light B. Yost

New York Section I.T.E. Holds Meeting

The New York Metropolitan Section of the Institute of Traffic Engineers held a meeting in New York on April 9. President Matson presided over the meeting and the numerous I.T.E. members and guests introduced themselves from the floor. Virden Rittgers, Chairman of the Social Committee, reported that Leslie Williams had extended an invitation to the members of the Section to hold an outing at his home at Rye, New York, some time in June. The Section was enthusiastic about Les Williams' invitation and accepted the same with thanks.

Photo by Harris & Ewing

Colonel Light B. Yost, (Member I.T.E.), who spoke at the recent New York Section meeting, is Executive Director of the President's Highway Safety Conference.

Principal speakers of the occasion were Colonel Light B. Yost, Executive Director, President's Highway Safety Conference, who discussed the forthcoming event; Henry Osborne, Traffic Adviser of the City of Buffalo, New

York, presented an illustrated talk on Buffalo's traffic plans.

The dinner meeting was an enjoyable one, attended by 63 persons, most of whom also attended and participated in the 16th Annual Safety Conference and Exposition of the Greater New York Safety Council. The meeting adjourned at 10:00 P.M. Those in attendance at the Section meeting were as follows:

Col. Light B. Yost	Norman Kennedy
Col. Robert Tripp	W. R. Welty
Reynolds Weaver	T. Creeden
Kirk Keegan	Wilbur Smith
Harold Hammond	Lawrence Waterbury
Henry Evans	Nathan Cherniack
Theodore Matson	Wallace Braun
John Gibala	George Lewis
Henry Osborne	C. F. LeCraw
Fred Fisch	Maj. Holmes
Richard Siver	Tsai-Ping Liang
Walter Spratt	F. Jones
Jules Hall	Lt. Col. W. P. Huntzicker
Wesley Bellis	Herbert Taylor
James Schulster	Lloyd Maeder
Harry Koch	E. Clark
Lou Bender	Ed Wetzel
Robert Royster	Mr. Welliston
H. W. Alexander	Fred Gruning
Dean Edwards	Amos Neyhart, Jr.
Leslie Williams	M. H. West
Guy Kelcey	R. A. Burgs
Graham Cole	D. S. Johnson
Virden Rittgers	A. Diebold
Thomas Willier	Herbert Keegan
Roger Gilman	R. G. Mitchell
W. J. Simon	J. N. Howerton
Fred Hurd	Fred Manning
George Howie	Earl Ousterhoudt
M. E. Campbell	A. Carrothers
T. Gustafson	A. Genest

Traffic Survey for Ft. Wayne

A traffic survey is contemplated for Fort Wayne, Indiana, the purpose of which is to aid in determining the following steps in advancing safety and eliminating congestion: designation of certain arterials and alleys as one-way; installation of a modern traffic signal system; elimination of right or left turns, or both, during peak periods; elimination of parking on one or both sides of certain streets, according to traffic flow; control of pedestrian traffic; elimination of double parking for truck deliveries through establishment of ample loading zones.

Major Joseph Feuchter writes to Wilbur Smith, I.T.E. Headquarters, from the Philippines, that he expects to be back in this country in the very near future. Major Feuchter is looking forward to again participating actively in I.T.E. affairs.

I.T.E. Members in Chicago Meet

On March 11th a group of I.T.E. members met in Chicago at a luncheon, primarily to welcome back some of the members who have been overseas.

The first speaker was Col. George Barton, who gave an enjoyable account of his experiences as well as other members of the I.T.E. with whom he came in contact. Following his talk, Harry Harrison outlined the splendid work done by the I.T.E. members stationed overseas and of the fine comments received from the Army officials. William Abbott, recently discharged from the Navy, gave an account of his experiences while stationed in California. Leslie J. Sorenson acted as chairman of the meeting. Others present were as follows:

George Barton	Richard Fencl
Harry Harrison	L. H. Cather
Wm. Abbott	Russell Newell
Les Sorenson	Wm. McConochie
Geo. Cogger	Charles Rex
Matt Sielski	Victor Hofer
Harold Moore	Donald Magowan

Washington Section, I.T.E. Enjoys Inspection Tour

On Saturday afternoon, March 30th, the Washington Section enjoyed a bus tour of inspection of various traffic control measures and modern highway structures in Washington and adjoining Arlington County, Virginia. The trip included a demonstration of

AN OPPORTUNITY !

Wanted by City of Dallas: Assistant Traffic Engineer. Graduation from college in some engineering field, preferably civil, and experience in traffic engineering work. Salary to be gauged by length and kind of experience. Apply: Civil Service Board, 309 City Hall, Dallas 1, Texas.

the inspection of motor vehicles and a trip through the Department of Vehicles and Traffic. Personnel of the Department acted as "barkers" for the trip and explained the various installations.

Rainy weather was responsible for a small attendance, which included the following members and guests:

Wm. B. Hampton	C. W. Reed
R. S. Holmes	C. W. Stark
Wm. R. Hunter	M. C. Stark
John Mitton	C. G. Stoneburner
O. K. Normann	M. L. Weems

Lt. Col. Louis Bender, (Member I.T.E.), was released from the Army in March of this year. He is now with the Port of New York Authority as Traffic Engineer of the Department of Operations. Col. Bender was Chief of the Highway Branch, 4th Zone Transportation Office, U. S. Army, with headquarters in Atlanta until his discharge. Highway transportation in connection with the Clinton Engineer Works at Oak Ridge, Tenn., the "Atom Bomb City," came under his cognizance while serving with the Army. Before entering service in the fall of 1942, Col. Bender made notable contributions to wartime transportation conservation in Indiana. He actively served on the Governor's War Transportation Committee in that State while being employed as a traffic engineer for the State Highway Commission.

Dean G. Edwards, C. E., formerly Consulting Engineer and more recently Chief Engineer for the Borough of Manhattan is now associated with Charles E. De Leuw and Guy Kelcey, Consulting Engineers in New York and with De Leuw, Cather & Company, Engineers of Chicago. Mr. Edwards will be located at 120 Broadway, New York 5, N.Y.

Mr. Edwards has been identified with the engineering profession and the construction industry in New York City for many years. A graduate of Harvard, he worked with the City on the construction of the original subway and later on the Catskill Aqueduct. During two city administrations, he was Consulting Engineer and Chief Engineer of the Borough of Manhattan. Early in the war he was Chief of the Construction Branch of the War Production Board.

Edmund Ricker, Major, U.S.A., recently visited the I.T.E. headquarters in New Haven . . . **Ted Forbes** has just written to I.T.E. headquarters stating that he had a most pleasant trip to Honolulu and is now settling down to becoming a "full-fledged" college professor.

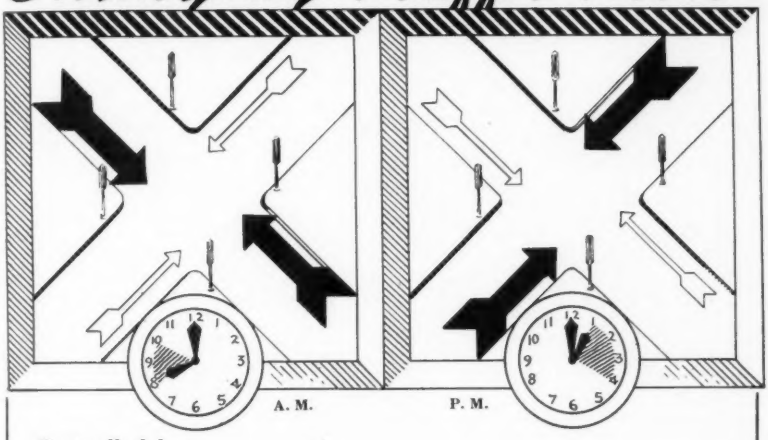
Refresher Course at Northwestern

The Northwestern University Traffic Institute will conduct its first annual alumni refresher course May 27 to June 8 in Evanston, Ill.

Attendance will be limited to graduates of the four-and-a-half or nine-month course in traffic police administration. This new short course is one phase of the Institute's expanded program of alumni follow-up service, made possible by an additional grant from the Kemper Foundation for Traffic Police Training. There will be no tuition charge.

The two-week course will provide both refresher and advanced training for Institute alumni. It offers excellent

Changing Traffic Flow



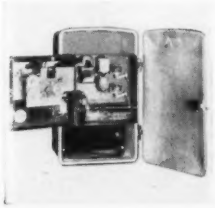
Controlled by

the EAGLE *Two-Dial* "EA" Controller

The Eagle Two-Dial "EA" Synchronous Controller is virtually two controllers in one. Each of the two independent dials provides its own total time cycle setting, as well as independent setting for all of the intervals in the cycle. Available for non-interconnected and interconnected operation—also accessories such as flashing, manual control, time clocks, remote fire department feature.

Control of changing traffic conditions is no problem for this flexible Eagle "EA" Two-Dial Controller.

Controller Mounting



Mechanism Interior

Controller in Cabinet

EAGLE SIGNAL CORPORATION

Moline, Illinois

opportunities for graduates who have been absent from their departments and from traffic police work while serving in the armed forces. Instruction will be keyed to the specific interests of those attending, with problems and procedures treated primarily from the administrative angle. Graduates will help plan the course by submitting suggestions on points they feel should be covered.

Instructors will include all senior staff members of the Institute plus police and other traffic officials and representatives of leading safety organizations.

GREEN CROSS FOR SAFETY CAMPAIGN

The National Safety Council and scores of local safety organizations throughout the nation have underway an intensive fund-raising campaign this month to enlist all America in a united war on accidents and to establish the Green Cross for Safety as the banner of that fight.

Theme of the campaign was established recently by President Harry S. Truman in a letter to Ned H. Dearborn, Council president. President Truman said:

"It is unthinkable that the nation will lose the war against accidents after winning the war against the Axis. This must not and shall not happen."

The drive, marking the first time in its 33-year history that the National Safety Council has gone directly to the general public for funds, comes at a time when the public is growing increasingly aware of the accident problem because of the appalling rise in traffic deaths since the end of the war. The Green Cross will serve as the emblem of safety in the home, on the farm, in the factory, and in the schools, as well as on the teeming streets and highways of the nation; Mr. Dearborn said.

The National Safety Council will conduct the campaign in Chicago, its headquarters city, and in New York, while city and state safety groups will carry the program into every section of the country, Mr. Dearborn said. Although no national goal has been set, local quotas are expected to total approximately $3,000,000.

"The popular campaign for funds," Mr. Dearborn said, "is designed to promote two important goals. By having the men, women and children of the country contribute funds, it will make them active participants in a program they accepted only too passively before. And by making the Green Cross an ever-visible reminder of possible carelessness, the campaign will cut down the number and severity of accidents."

"By paving the way for a more serious reception for safety ideas and broadening financial support, the Council will be able to carry out vigorous safety campaigns on a scale impossible before."

Mr. Dearborn pointed out that during the war, deaths and injuries from accidents on the home front exceeded battle casualties among the American forces. Last year alone 96,000 Americans, including 20,000 children, lost their lives through accidents of all types. At least 10,300,000 persons were injured accidently in America during the year—a total approximating the peak war strength of our armed forces. Economic loss during 1945 was estimated at $5,000,000.

"There is no more sense in our suffering such an accident toll every year than there would be in our tolerating the typhoid rate of 50 years ago," Mr. Dearborn said. "We know just as definitely how to prevent accidents as the medical profession knows how to prevent typhoid. The public must be educated in the ways of safety. The entire community suffers when one adult or child is injured or killed."

LET'S LOOK AT...

Dual Facts and Figures

1945 INCOME $87,478
EXPENSE 2,372
BALANCE $85,106

HERE is the true story of an up-to-date midwestern city whose downtown traffic is controlled by 975 Dual Parking Meters.*

During 1945, this city's total parking meter revenue was $87,478.70. Expenditures totalled $2,372.50. These included $2,150.00 serviceman's annual salary and $217.50 to cover labor and material costs of painting meter heads and posts. *Less than* $5 of the total expenditure was used for repairs and maintenance of all city parking meters—a real testimonial to Dual's reliable performance and durability.

Today, this city has a comfortable treasury balance of $85,106.20, earned by Dual meters alone. That balance can be used for other safety endeavors—street lighting, police department, traffic lights, educational campaigns. Furthermore, this city can depend on comparative annual incomes from Duals for many years to come.

Learn how Duals can help your city solve parking and traffic control problems—build up your treasury. Duals are attractive, easy and economical to install and maintain, simple to operate.

Get all of the interesting details now. Write today for your free copy of "Metered Parking—The Answer to Tomorrow's Traffic Control Problem". Dual engineers will be glad to help you survey your needs—make helpful recommendations.

THE DUAL PARKING METER COMPANY
HARTER BANK BUILDING, CANTON 2, OHIO

*Name of city on request.

When it Comes to Controlling Parking . . .
You can do it better with DUALS

NEWARK TRAFFIC ENGINEER FAVORS MORE METERS

The need for parking meters on additional Newark, New Jersey streets was outlined in a report received by Public Safety Director Keenan from Edward L. Cyr, city traffic engineer.

Mr. Cyr suggests meters be installed on portions of Clinton, Springfield, South Orange and Central avenues; Orange, William and Ferry streets.

He pointed out to Keenan that "traffic congestion, always a serious problem, will be further increased by the great number of automobiles and commercial vehicles that will crowd the city streets."

The traffic engineer said meters should be installed wherever parking conditions hinder the free flow of traffic. Past experience, he said, has proven that controlled parking is successful.

1,150 Meters Now

At present there are 1,150 parking meters in operation in Newark. Since initial installation in 1942, total receipts have amounted to $245,272.41.

Keenan said he does not plan to install any more meters this year. He explained that while the meters pay for themselves, there is an initial outlay for their installation. He does not want to further increase his budget, he said.

Mr. Cyr's report reveals that the meters have gradually been "taking a beating" at the hands of the public. In 1942 only 555 dial glasses were broken and replaced, compared with 2,331 last year. There were no coin boxes broken in 1944, but last year 389 were replaced. It was necessary to replace 179 meters in 1944, but that number increased to 484 last year.

From 1942 through 1944 only two meters had been stolen. Last year 13 were stolen. In addition pedestals and units were damaged or replaced in much larger number last year than any other.

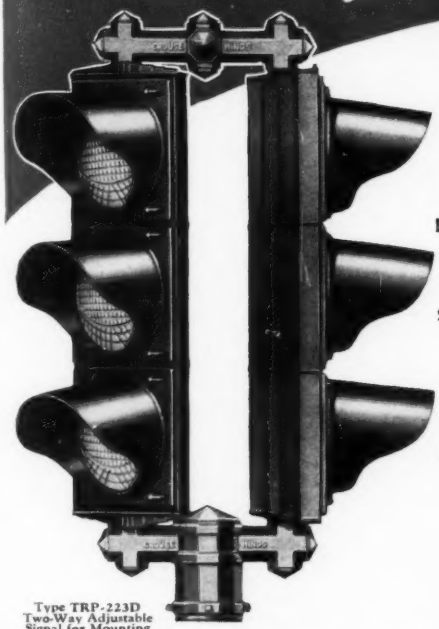
Mr. Cyr attributes this destruction to the end of the war moods of Newarkers, particularly during the celebration of V-J Day.

INSTITUTE ACTIVITIES 10 YEARS AGO

Taken from Traffic Engineering, May 1936

Edward H. Holmes (Associate), Highway Engineer Economist, U. S. Bureau of Public Roads, and Miss Elizabeth Boynton were married May 25 at the home of Mr. and Mrs. L. S. Tuttle in Alexandria, Virginia. Mrs. Holmes is a graduate of the University of California. Her sister is the wife of Lawrence S. Tuttle, Highway Engineer Economist in the Bureau, and an Associate Member, I.T.E. . . . E. Elmer Transeau was promoted yesterday by Mayor Wilson to the position of Assistant Director of Public Safety, left vacant by the death of Howard D. Campbell. The post he leaves was given to Robert Mitchell, a traffic signal engineer, who now becomes Traffic Engineer. A veteran of 23 years of service in various city bureaus, Transeau was appointed as Traffic Signal Engineer in the Bureau of Traffic Engineering shortly after Mayor Wilson took office in 1936. He was graduated from the University of Pennsylvania in civil engineering in 1912, after preparing at Brown Preparatory School. He entered the Bureau of Highways in 1913 and was there until 1930. For many years he was an instructor in municipal engineering at Drexel Institute. He has written many papers on the subject, including a prize-winning essay on traffic in a contest sponsored by the P. R. T.

NEW Beauty, Strength, and Convenience



Type TRP-223D Two-Way Adjustable Signal for Mounting on a Standard 4-Inch Post

You get all three in

CROUSE-HINDS

NEW Two-Way Adjustable Traffic Signal with cast Aluminum Brackets

BEAUTY — You will be proud of your installation of these handsome new traffic signals with the modern design that wins universal approval.

STRENGTH — The sturdy cast aluminum brackets at both the top and bottom of the signal give unusual strength to the entire assembly. The lower bracket arms and the slip fitter are cast in one piece. This rigid construction permanently maintains the signal in a true vertical position.

CONVENIENCE — Easy installation and maintenance is an important feature of these new traffic signals. The slip-fitter casting at the bottom of the signal fits over a standard 4-inch post and has a large removable cap that permits the easy pulling of conductors straight up through the post. Small removable caps on the bracket arms make it convenient to add extensions of supplementary signals at any time.

The bodies are of the Crouse-Hinds sectional type, with all of the features that assure efficient operation, dependable service and low maintenance cost.

Write for additional information.

Crouse-Hinds Catalog No. 226 lists a complete line of traffic signals, beacons and flashers together with a series of controllers designed to solve your traffic control problems — from the ordinary "quiet" intersection to the most complex heavy-traffic problem. Send for your copy.

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Positions Open

The Bureau of Arterial Route Planning, New York State Department of Public Works has a number of positions open for engineers experienced in traffic and planning. The positions range from senior civil engineer (traffic) at $4,560 per year including bonus, to junior civil engineer (planning) at $2,928 per year including bonus. Qualifications for the positions require graduation in civil engineering from an institution of recognized standing and experience ranging from two years to seven years. Several of the positions require license to practice engineering in the State of New York.

Applications should be made to Fred W. Fisch (member I.T.E.), Principal Planning Engineer, New York State Department of Public Works, Bureau of Arterial Route Planning, Albany, New York.

Fourth Police Photography Contest Open

The Northwestern University Traffic Institute will conduct its fourth *semi-annual* police photography contest this spring, with the closing date for entries set at June 1.

Photographs may be submitted by any member of a city, township, county, special-district, state or provincial police department in the United States and Canada, provided the pictures were taken in the line of duty. Photographers need not have been on their official tours of duty at the time to comply with contest rules.

Prizes will be a $25 U.S. savings bond for first place and $10 in U.S. savings stamps for second place in each of these five classifications: traffic policing (any phase), general policing (any phase), police identification (traffic or general), safety education (traffic or general) and dramatic or human interest. In addition, several honorable mentions will be given.

Contest judges will be the photography editor or a staff photographer of a metropolitan newspaper or national magazine, a commercial photographer, a police executive, a traffic safety expert outside the police field and a member of the Traffic Institute staff who has had no advance contact with the entries.

Contest rules and entry blanks may be obtained from the Northwestern University Traffic Institute, 1704 Judson Ave., Evanston, Ill.

ON THE SHELF

Planning Legislation—1945; state planning and post-war city planning, county planning, regional planning, etc., by the American Society of Planning Officials—Public Administration Service, 1945—$1.00.

Traffic Accident Prevention through Motor Vehicle Inspection, by the American Association of Motor Vehicle Administrators and the National Conservation Bureau—1945.

Motorized America in War and Peace, by the Automotive Safety Foundation—1945.

A Report of an Engineering Study for Expressways in the Hartford Metropolitan Area, by the Connecticut State Highway Department, Bureau of Highway Planning Studies—1945—69 pages—free.

Traffic and Residential Real Estate, by Reginald R. Isaacs and Victor H. Bringe. American Transit Association. (A reprint from Federal Home Loan Bank Review).

President's Annual Report; Annual Meeting, Tuesday, January 8, 1946, by the Minnesota Safety Council, St. Paul, Minnesota—The Council, 1946.

An Act to Authorize the Commissioners of the District of Columbia to

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Acquire, Operate and Regulate Public Off-Street Parking Facilities and For Other Purposes. U.S. laws, statutes; 77th Congress, 2nd Session, Public law 454, Chapt. 76—free.

A Plan for Traffic Safety, by the Division of Traffic and Safety of the Ohio Dept. of Highways in cooperation with the Ohio Traffic Safety Council—1946—41 pg. pamphlet—(overall program of traffic engineering, educational plans and techniques and enforcement measures.)

A Report on Traffic Management and Accident Prevention for the city of Bend, Oregon, by the Traffic and Transportation Division of the National Safety Council in cooperation with the Office of the Secretary of State and the Oregon State Highway Commission—1945—27 p.

A Report on Traffic Administration, Facilitation and Control for the city of Lancaster, Ohio, by the Division of Traffic and Safety of the Ohio Dept. of Highways and the Traffic and Transportation Division of the National Safety Council—1945—31 p.

Planning Traffic Management and Accident Prevention for the Capitol City. Salem, Oregon; a report to the Mayor and Common Council, prepared by Harry Porter, Jr., Traffic Engineer, Traffic and Transportation Division of the National Safety Council, in cooperation with the Office of the Secretary of State, State of Oregon—1944—60 p.

10th Annual Report for the year ending December 31, 1944, by the Chicago Park District.

NEWS REPORT SERIES—1945—Automotive Safety Foundation—recently announced engineering surveys and programs for urban highway development.

PARKING TRANSIT LINES IN LOS ANGELES CENTRAL BUSINESS DISTRICT — 1945 — the Los Angeles Central Business District Association.

DRIVING — ADMINISTRATIVE ASPECTS OF DRIVING INSTRUCTION — 1945 — National Safety Council.

HIGHWAY PLAN FOR SAVANNAH, GEORGIA—H. W. Lockner & Company, Chicago—1945—Georgia State Highway Department.

ANNUAL SUMMARY OF MOTOR VEHICLE ACCIDENT FATALITIES—1943—U. S. Bureau of the Census.

TRAFFIC CONGESTION—What can be done about it? Statement of the problem. American Transit Association—1945—3 pp mimeographed.

AN ORDINANCE REGULATING THE OPERATION OF MOTOR BUSES—requiring the owners or operators of such buses to provide off-street accommodations — Pittsburgh, 1945—(File of Council, City of Pittsburgh, series 1945, file No. 1116, Bill No. 1745).

TIRE PRODUCTION DURING WAR YEARS

United States production of tires during the war years 1942 through 1945 totaled 57,500,000 units for passenger cars and 57,000,000 for trucks and buses, it was announced recently by W. James Sears, Director of the Civilian Production Administration Rubber Division. During these years shipments to Canada totaled only 3,546 passenger car and 2,700 truck and bus tires. —*Highway Research Abstracts*

IN OAKLAND THERE IS NO PARKING PROBLEM

One of the very few cities in the United States which does not have a parking problem is Oakland, Calif., a city which found its solution seventeen years ago.

Back in 1929 the downtown merchants and property owners of Oakland discovered that the city was beginning to decentralize and that people were complaining about the lack of parking space in the central business district.

Oakland merchants and property owners nipped the unhealthy trend in the bud. A Downtown Merchants Parking Association was formed, which lost little time in establishing parking facilities attractive to shoppers. Five sites were leased and converted into clean and attractive parking lots, one of them squarely in the center of the business district.

Today six lots are operated with a total capacity of more than 800 cars. Including night operations, the lots average a turnover of 3.07 cars per space per day. Extra lots are leased for the Christmas shopping period.

The quick shopper pays nothing for parking. Until 6:00 p. m. parking is free for periods of one, one and a half or two hours, depending upon location of the lot. After that a fee of 10 cents per hour is charged, with 50 cents the maximum charge.

To make up operating deficits, the 150 members of the parking association are billed monthly on a pro-rata basis in accordance with the number of tickets each has validated. Two-thirds of the operating costs are derived from cash revenues at the lots, leaving the validation charges low—about four cents per ticket validation.

SHOPPERS GET A BREAK in Oakland, California, where six modern parking lots accommodate 800 cars at a time in the downtown business district.

Local Highway Officials' Organization Completed

The American Institute of Local Highway Administration, organized last January in Chicago at the convention of the American Road Builders' Association, took tangible form in Washington, D. C., recently at a 3-day session of the organization committee.

This organization, which is to represent rural highway officials of the United States under the auspices of the County Highway officials' Division of the American Road Builders' Association, has for its purpose the assembling and dissemination of information of all types bearing on local rural highway administration according to Gilbert Smith, Anson, Tex., president of the institute. The organization, made up of three members from each state delegated by state associations of local highway officials, is modeled along the lines of the American Association of State Highway Officials, but at the local administrative level, explained Chairman Almand. The committee at its meeting drafted a constitution and defined purposes and policies. Members of the organization committee present were: Ed L. Alman, Atlanta, Ga.; Andrew L. Burrus, Union City, Tenn.; A. O. Cuthberg, Lansing, Mich.; D. Y. McDaniel, Waco, Tex.; A. V. Thelen, Madison, Wis.; and H. A. Thomson, Drexel Hill, Pa.

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TRAFFIC ENGINEERING MOST EFFECTIVE

At a symposium on traffic congestion at the American Society of Civil Engineers meeting in N. Y. January 18th, Leslie Williams, Member. I.T.E., conducted a decongestion poll of those present. Asked to state the measure which would bring the maximum decongestion in 1946, 35.7% voted for traffic engineering; 24.5% for mass transportation; 13.9% for freeways and parkways; 11.2% for off-street parking and terminals; 9.3% for police enforcement; and 5.4% for city planning. A total of 151 votes were cast.

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A REMARKABLE FORECAST OF THE AUTOMOBILE ERA

(From "The Household Physician," Published in 1872)

Reprinted in "Automobile Facts"

* * * Change of location for a short time, or permanently, does promote health and protract life. * * * Traveling is eminently fitted to draw the thoughts of the nervous and feeble from themselves and to turn them with interest to outward objects. This is of great importance. It is better than stimulants and tonics. * * *

One Thing More Wanted

But one thing is wanted to bring the means of travelling for the sick very nearly to perfection; it is a method of propelling carriages upon common roads, by some cheap power, which can never be exhausted, and which shall be easily managed by the traveller or his companion. This is a prominent want of the present hour; a giant discovery which, at a single stride, would carry the world forward a hundred years, and which, we may hope, is in the womb of the near future. * * * The mode of applying it, when discovered, will be simple, yet wonderful; and the results to the sick beneficent beyond expression. The human mind cannot conceive the advantages which invalids would derive from such a mode of conveyance.

Journeys, long or short, might be made with any rate of speed which the strength permitted. The morning or afternoon stages might be discontinued when fatigue demanded, and resumed at pleasure. Over uninviting regions the traveller might glide swiftly, and linger where nature spreads her feasts for the mind.

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